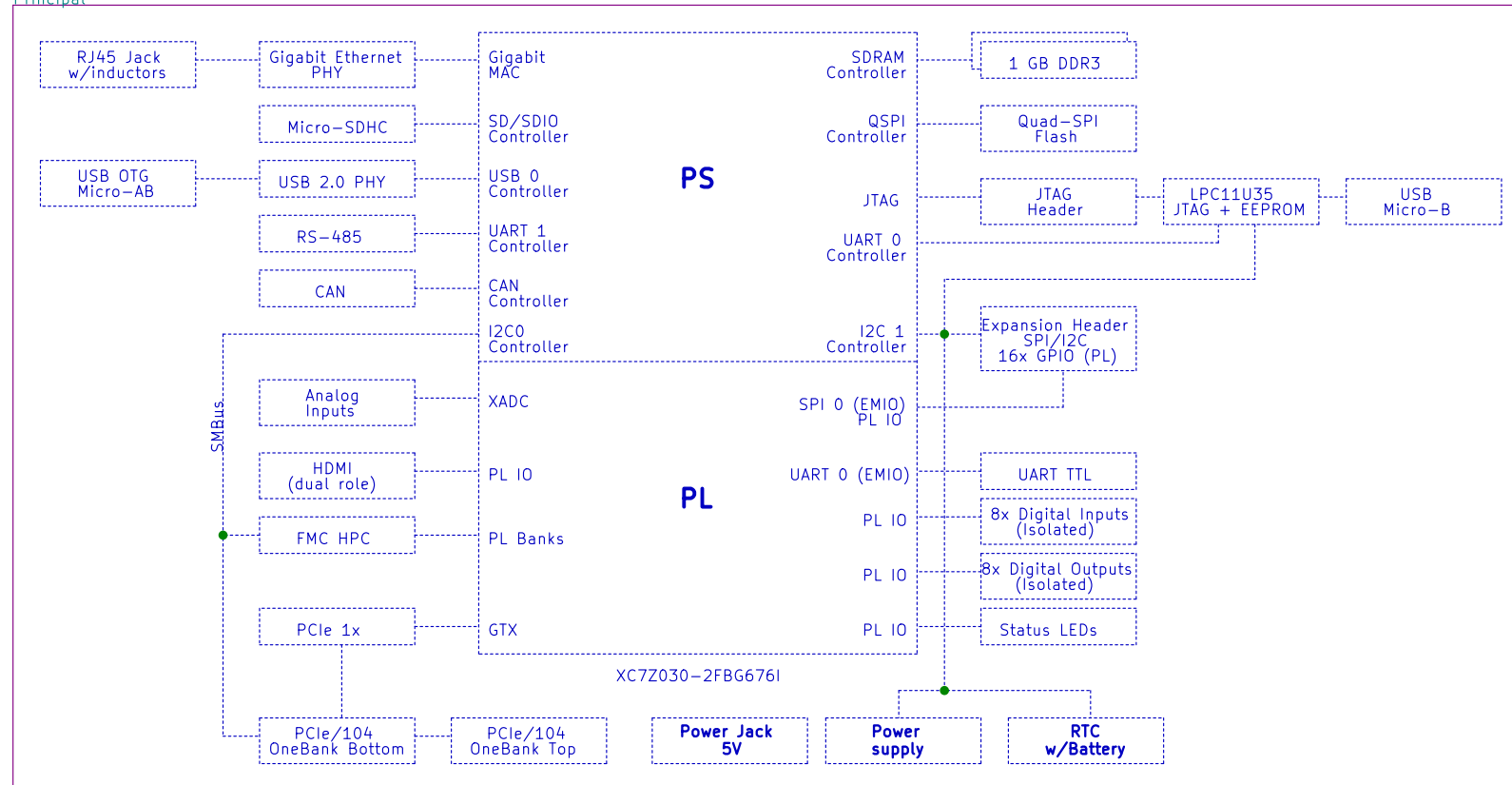


Computadora Industrial Abierta Argentina

CIAA-ACC

Xilinx XC7Z030 (2x Cortex A9 + Kintex-7 FPGA)

Principal



Principal.sch



Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.
COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

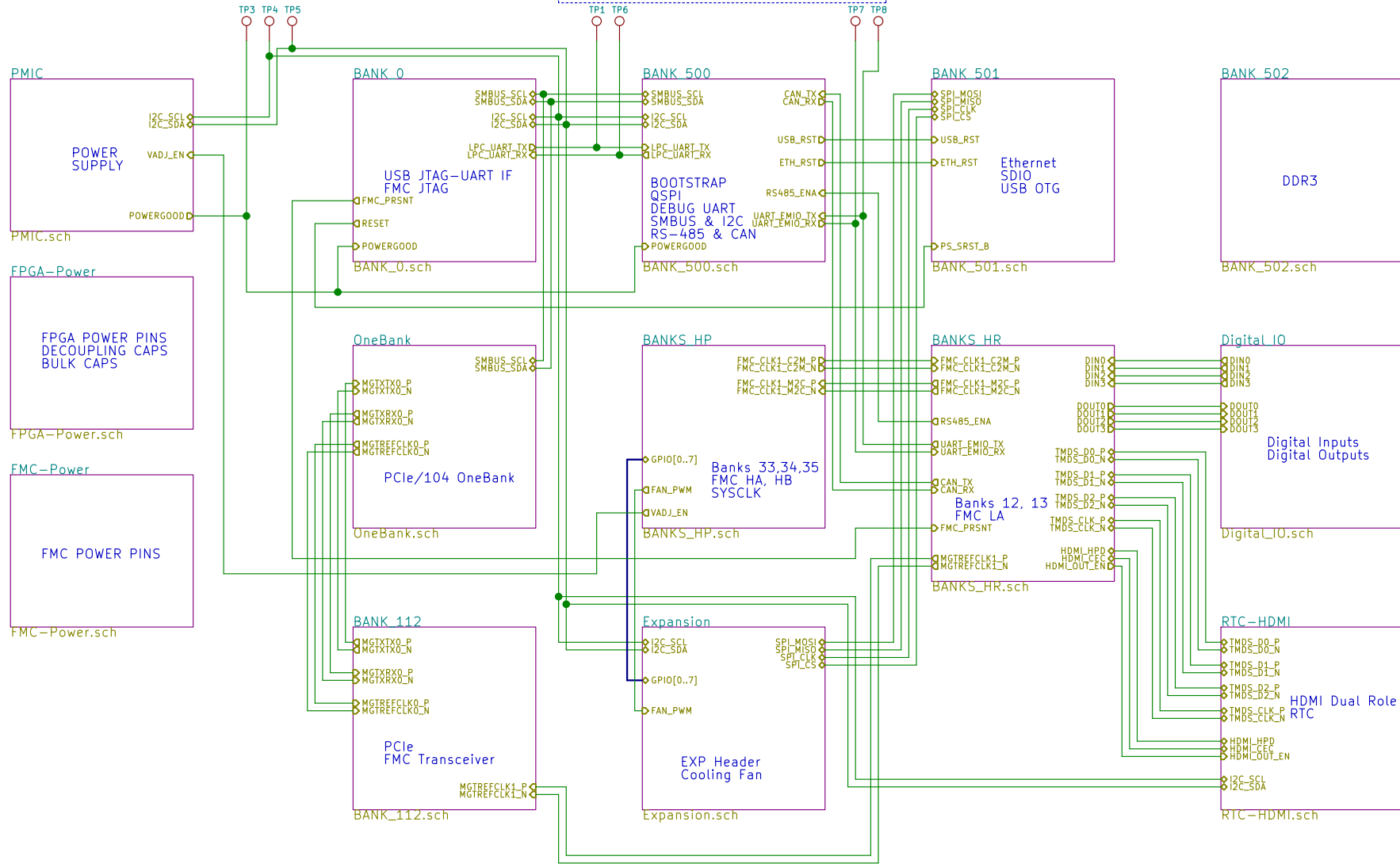
Sheet: /
 File: ciao_acc.sch

Title: CIAA-ACC Block Diagram

Size: A4 Date: 2016-10-17
 KiCad E.D.A. kicad 4.0.2-stable

Rev: V1.1
 Id: 1/16

Hierarchical Schematic



FMC COMPATIBILITY NOTE:

Currents:
3.3V: 3A
VADJ: 2A
1.2V: Not implemented

VIO_B_M2C: Not implemented
VADJ: Powers the LA bank only
Banks HA & HB: 1.5/1.8V only, selectable by switch

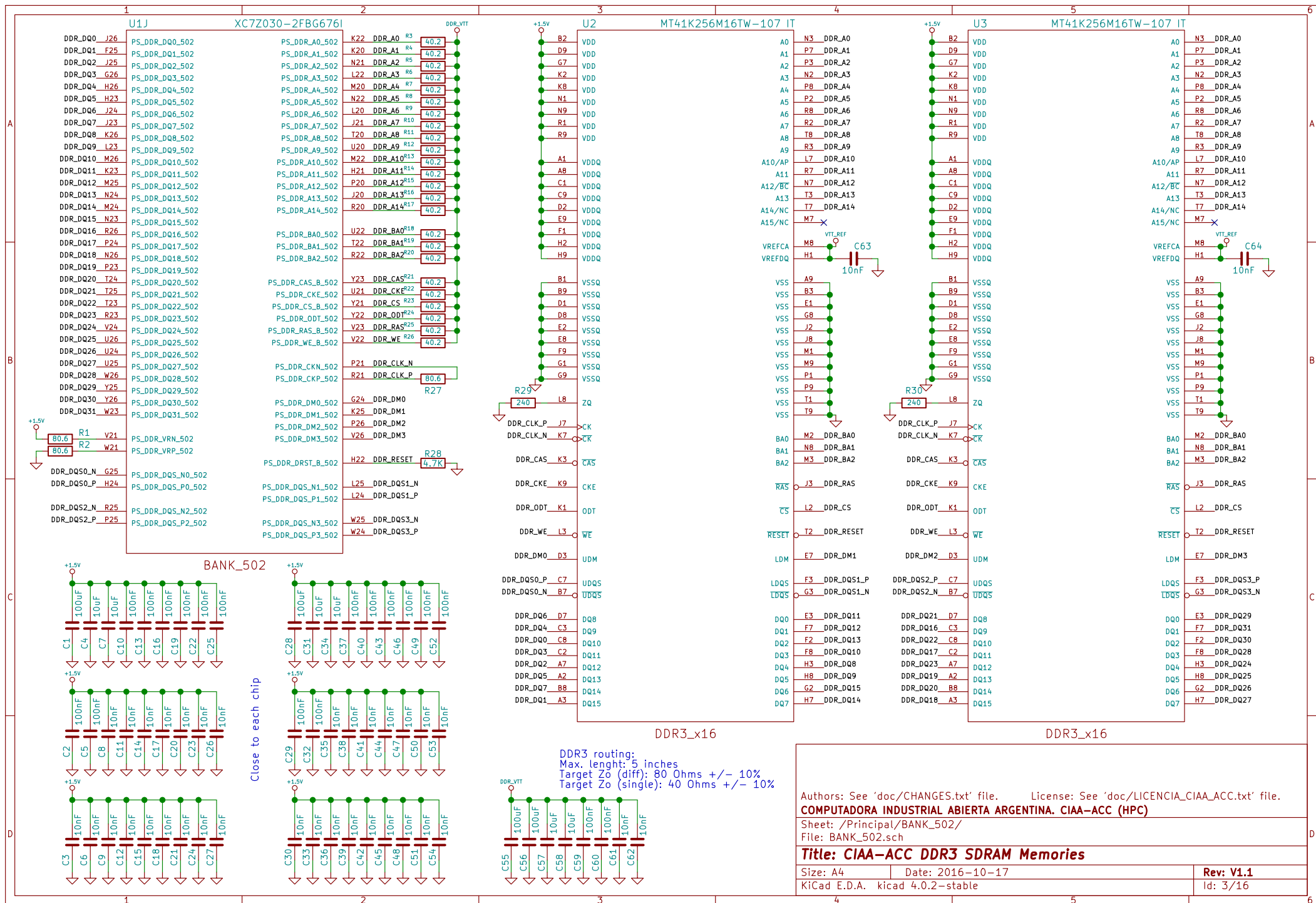
Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.
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Sheet: /Principal/
File: Principal.sch

Title: CIAA-ACC Hierarchical schematic

Size: A4 Date: 2016-10-17
KiCad E.D.A. kicad 4.0.2-stable

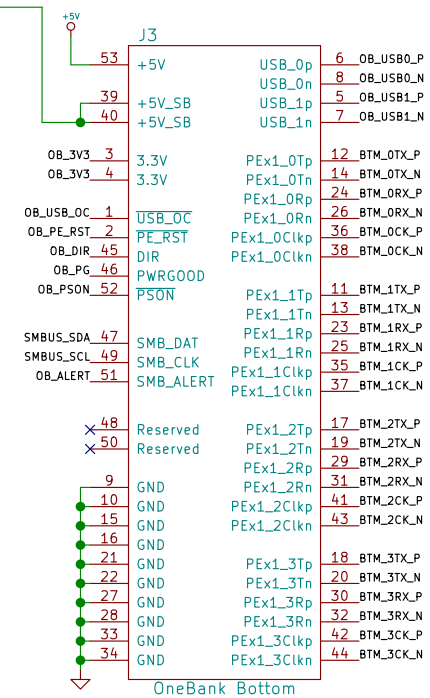
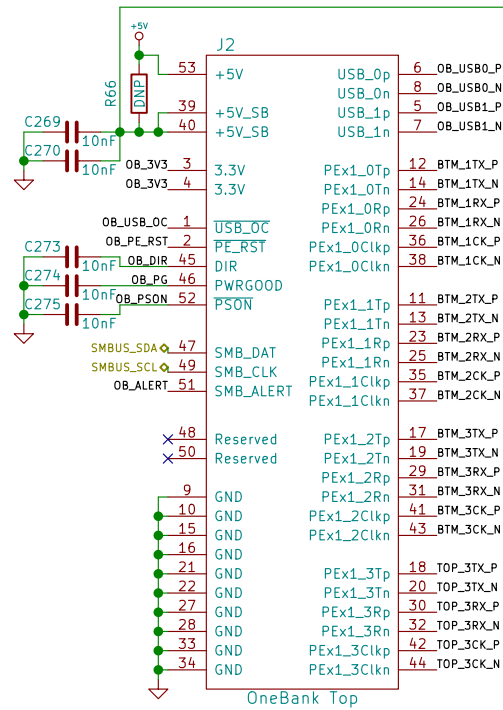
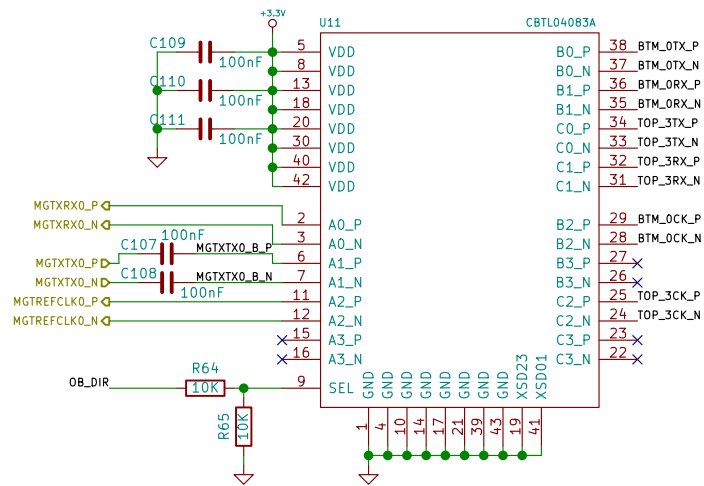
Rev: V1.1
Id: 2/16



PCIe/104 OneBank Connector

H1 H3
H2 H4
Holes PCIe 104

Mux/Demux Switch



PCle OneBank device routing:
Max. length: 4 inches
Target Zo (diff): 85 Ohms +/- 15%
Spacing between links: 20 mils
Matching tolerance (intra-pair): 5 mils
Matching tolerance (inter-pair): Not required

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Sheet: /Principal/OneBank/
File: OneBank.sch

Title: CIAA-ACC PCIe/104 OneBank Connector

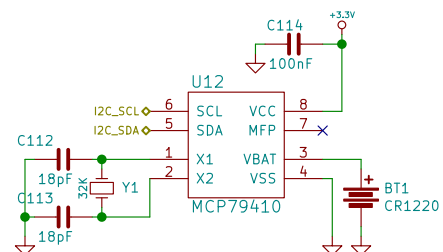
Size: A4	Date: 2016-10-17
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Size: 71	Date: 2018-1
KiCad E.D.A.	kicad 4.0.2-stable

Rev: V1.1

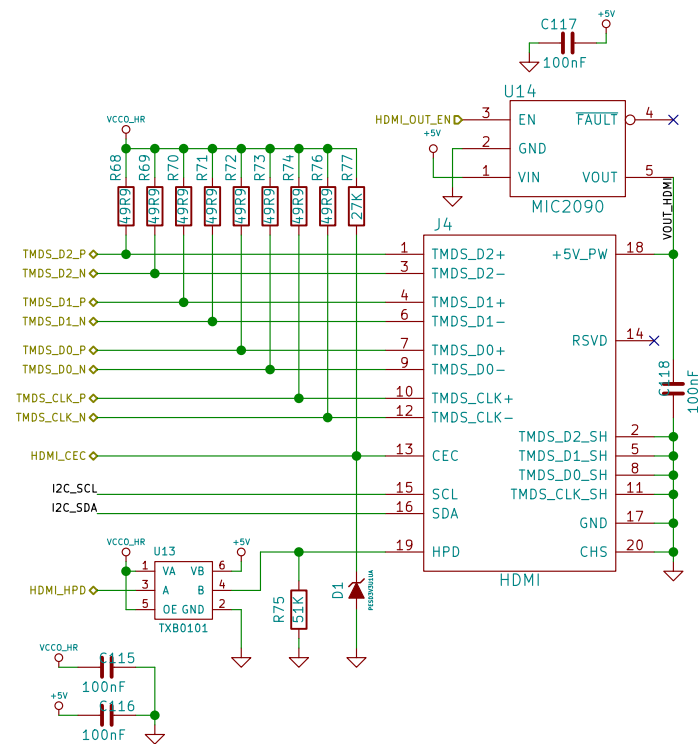
Id: 5/16

HDMI / RTC



I2C Addresses: 0x6F & 0x57

Real Time Clock



HDMI DUAL ROLE

Note for HDMI: VCCO_HR must be 3.3V

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Sheet: /Principal/RTC-HDMI/

File: RTC-HDMI.sch

Title: CIAA-ACC HDMI Dual Role

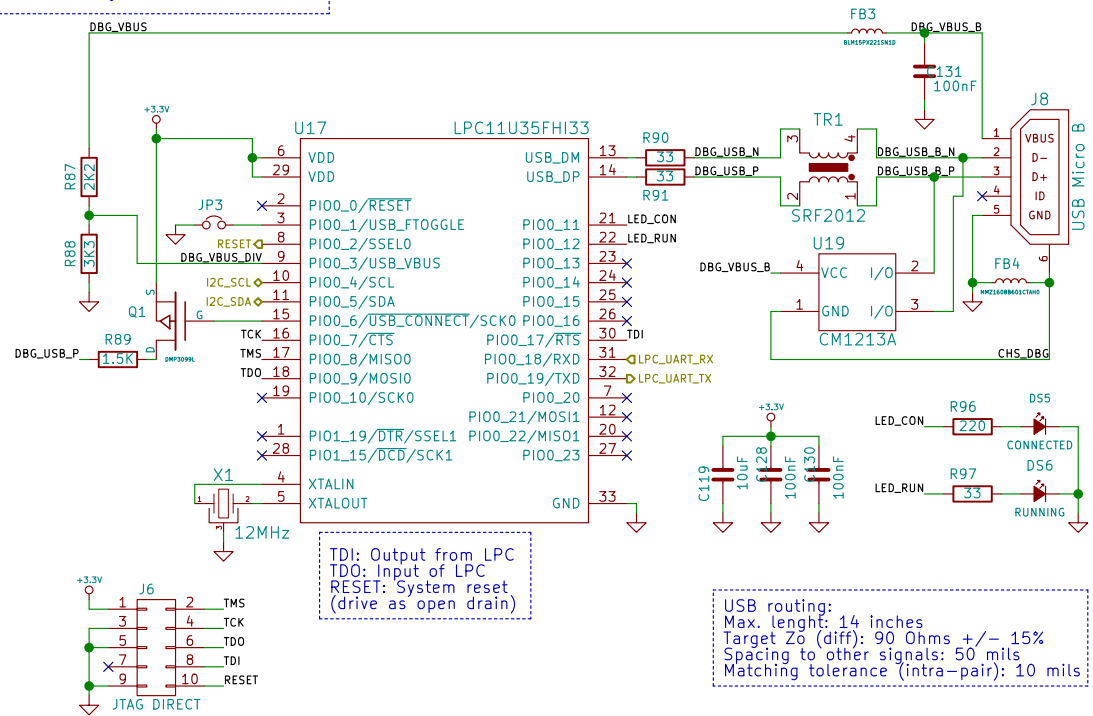
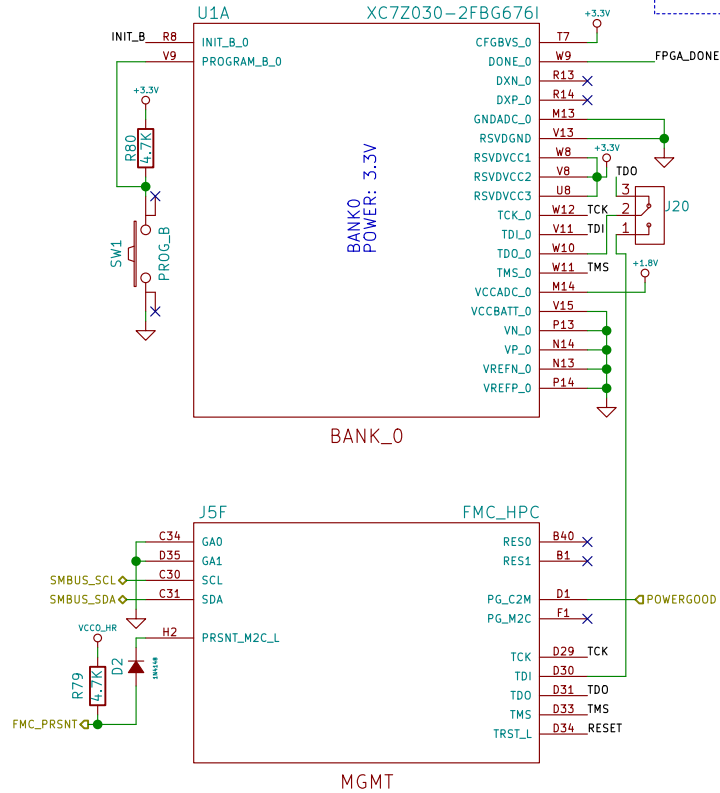
Size: A4	Date: 2016-10-17
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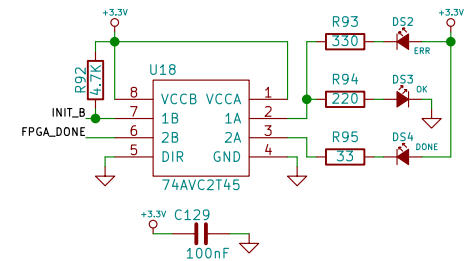
Rev: V1.1

Id: 6/16

USB JTAG UART / FMC JTAG



FPGA CFG LEDS



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Sheet: /Principal/BANK_0/
 File: BANK_0.sch

Title: CIAA-ACC USB JTAG UART / FMC JTAG

Size: A4 Date: 2016-10-17

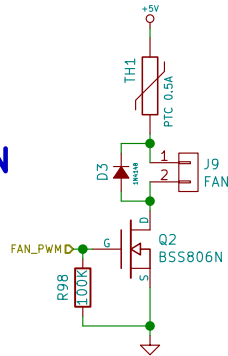
KiCad E.D.A. kicad 4.0.2-stable

Rev: V1.1

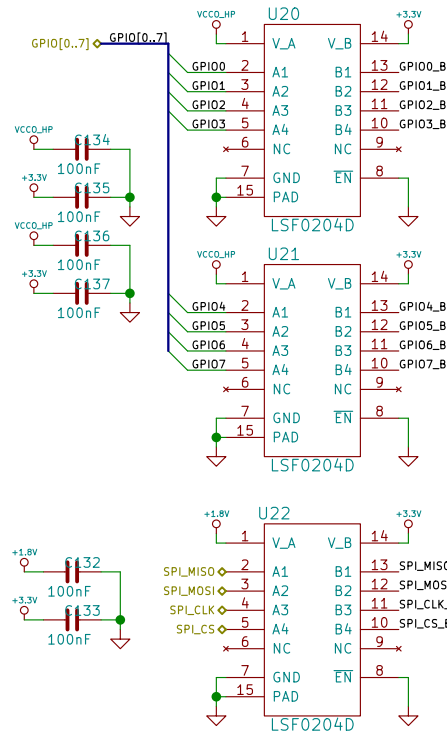
Id: 7/16

Expansion Header / FAN Connector

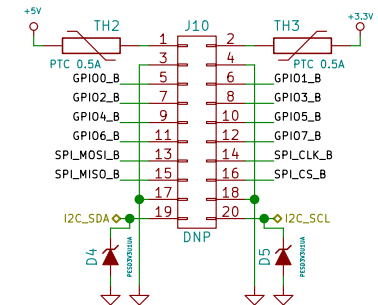
FAN



Voltage level translator



Expansion Header



GPIO Only available when
VCCO_HP = 1.8V

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COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

Sheet: /Principal/Expansion/
File: Expansion.sch

Title: CIAA-ACC Expansion Header (GPIO, SPI, I2C) / FAN Connector

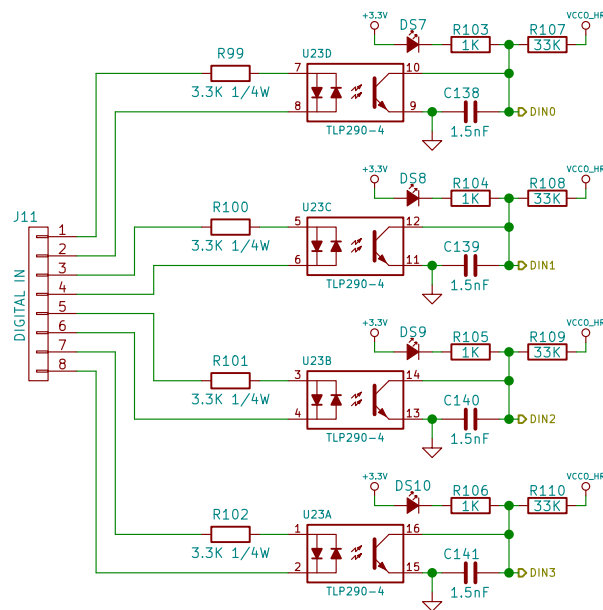
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KiCad E.D.A. kicad 4.0.2-stable

Rev: V1.1

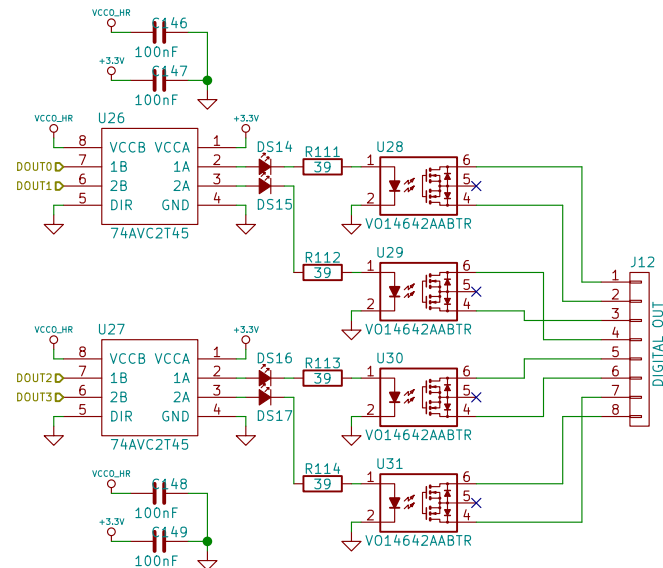
Id: 8/16

Digital Inputs and Outputs



ISOLATED DIGITAL INPUTS

Range: 12 to 24 V



ISOLATED DIGITAL OUTPUTS

Range:

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COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

Sheet: /Principal/Digital_IO/

File: Digital_IO.sch

Title: CIAA-ACC Digital Inputs and Outputs

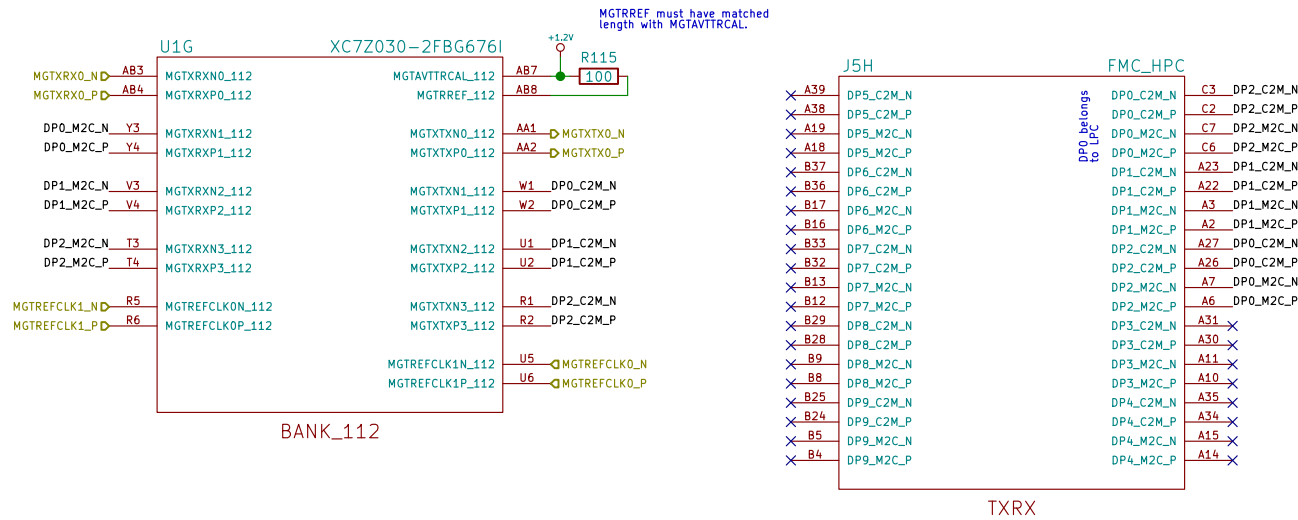
Size: A4 Date: 2016-10-17

KiCad E.D.A. kicad 4.0.2-stable

Rev: V1.1

Id: 9/16

PCIe / FMC Transceiver



Coupling capacitor for transceivers must be in FMC mezzanine card.

PCIe routing:
Target Zo (diff): 85 Ohms +/- 15%
Spacing between links: 20 mils
Matching tolerance (intra-pair): 5 mils
Matching tolerance (inter-pair): Not required

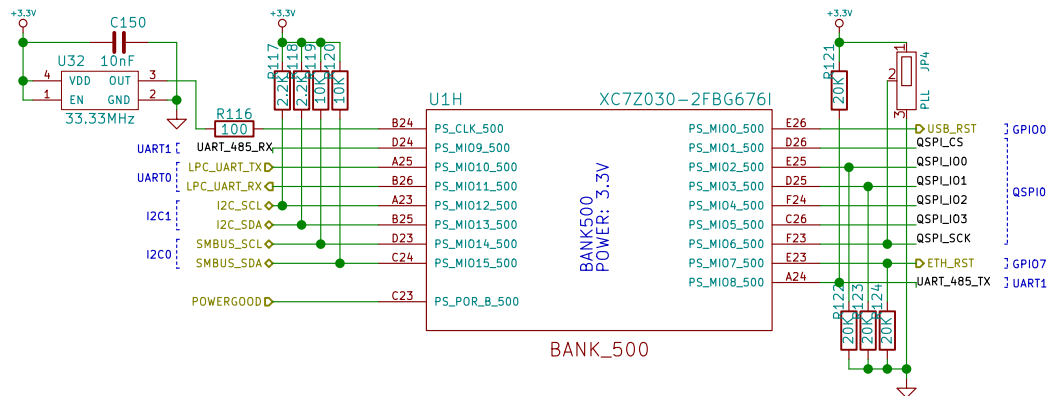
Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.
COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

Sheet: /Principal/BANK_112/
File: BANK_112.sch

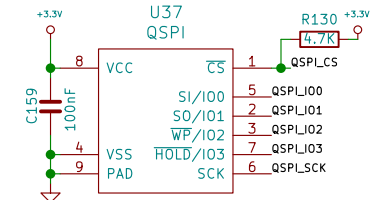
Title: CIAA-ACC FPGA PCIe / FMC transceiver

Size: A4	Date: 2016-10-17	Rev: V1.1
KiCad E.D.A. kicad 4.0.2-stable	Id: 10/16	

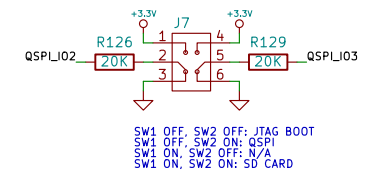
UART, QSPI, I2C, CAN, RS485



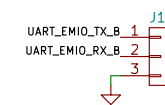
QSPI



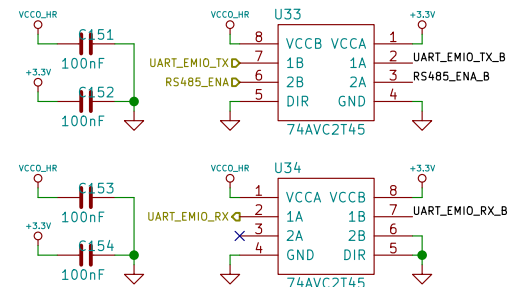
QSPI Routing:
Target Zo: 50 Ohms +/- 5%
Spacing to other signals: 3w
Matching tolerance: 3 mm



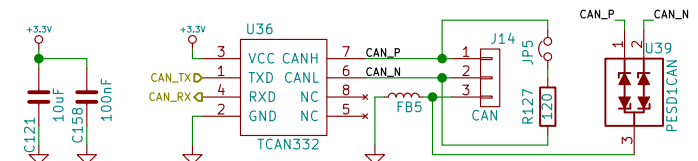
EMIO UART



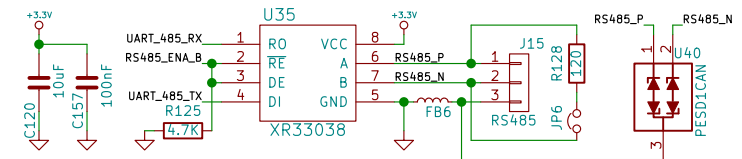
BOOT SELECTOR



CAN



RS-485



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Sheet: /Principal/BANK_500/
File: BANK_500.sch

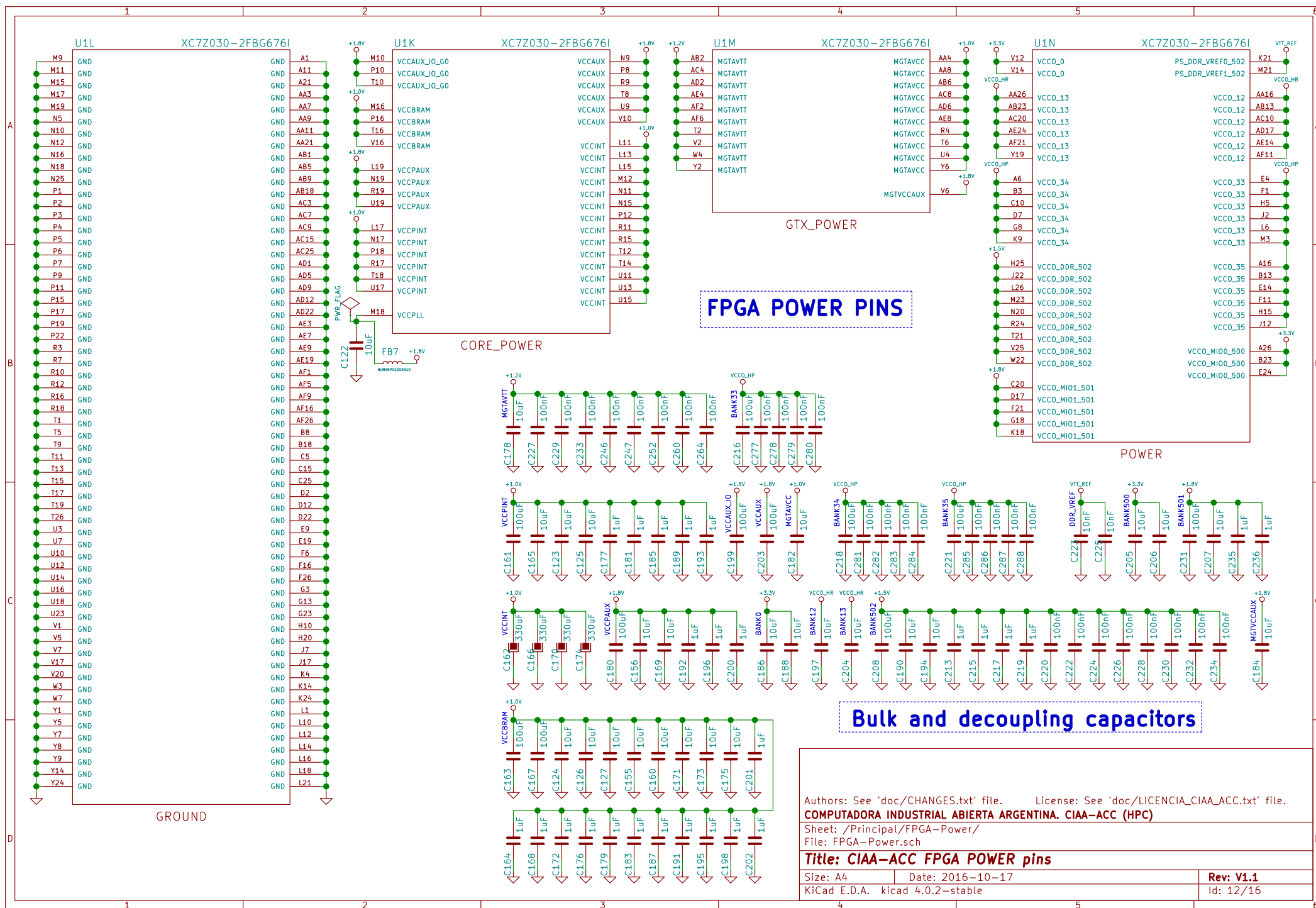
Title: CIAA-ACC UART, QSPI, I2C, CAN, RS485

Size: A4	Date: 2016-10-17
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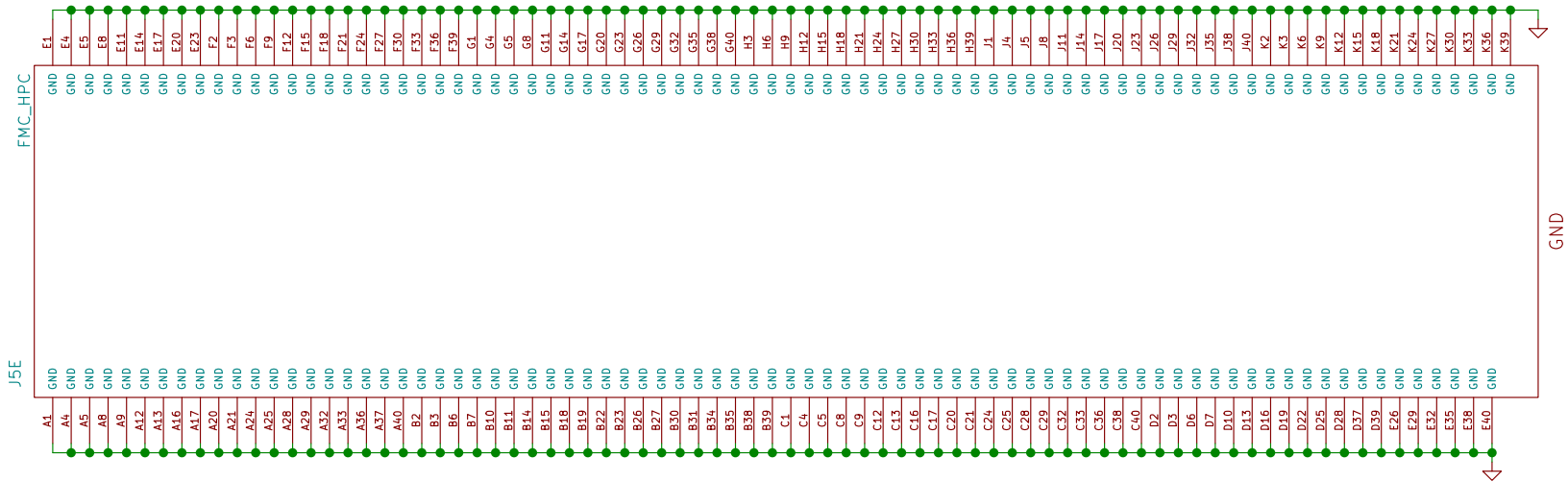
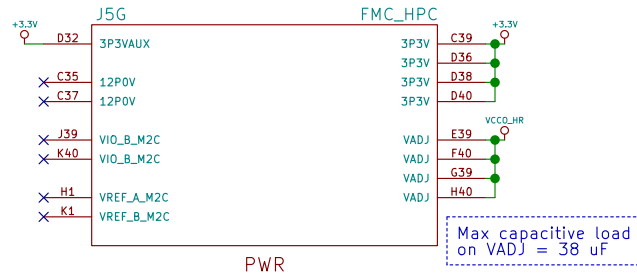
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Rev: V1.1

Id: 11/16



FMC POWER PINS



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COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

Sheet: /Principal/FMC-Power/

File: FMC-Power.sch

Title: CIAA-ACC FMC POWER pins

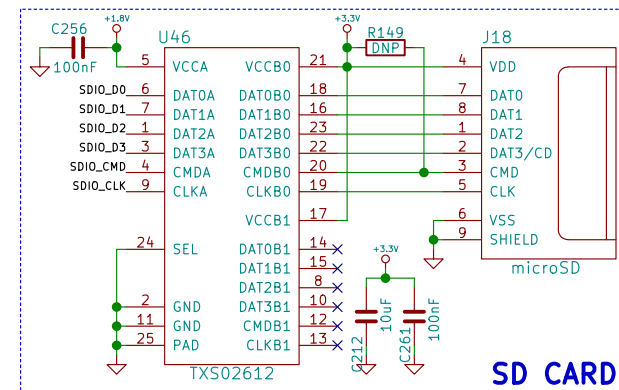
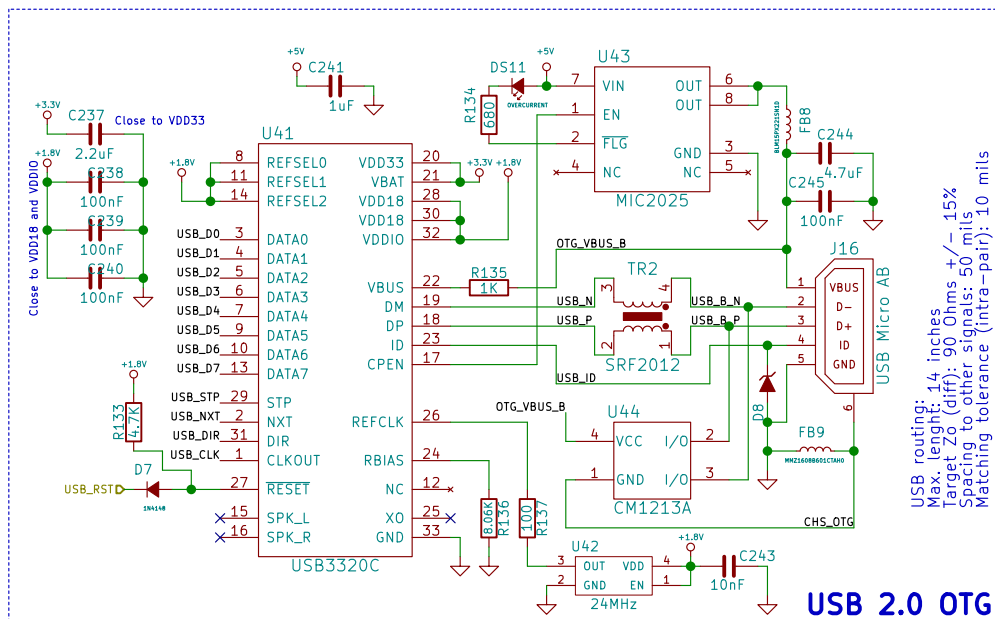
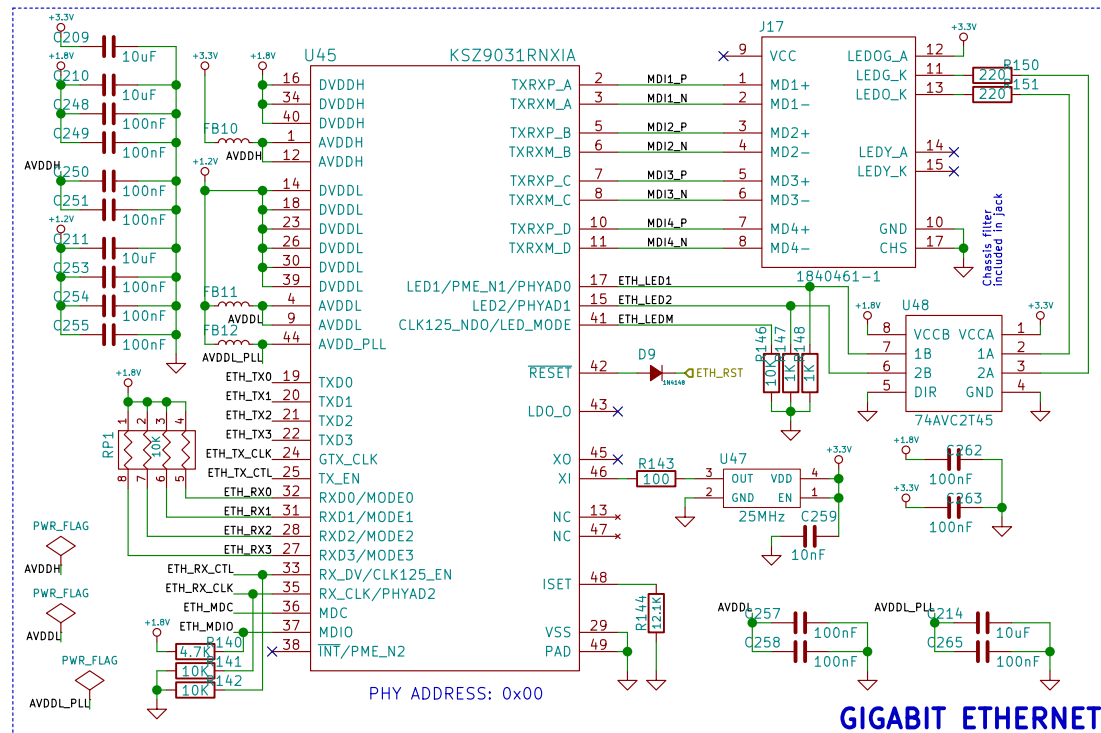
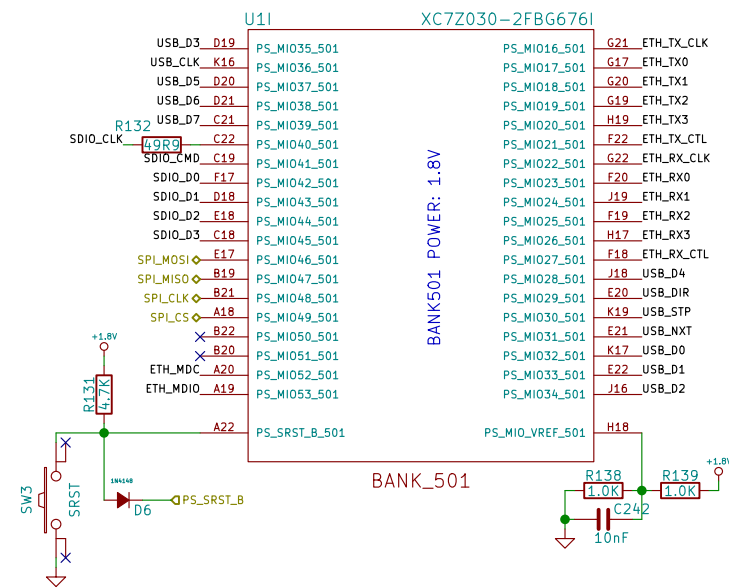
Size: A4 Date: 2016-10-17

KiCad E.D.A. kicad 4.0.2-stable

Rev: V1.1

Id: 13/16

ETH, SDIO, USB OTG



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COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

Sheet: /Principal/BANK_501/

File: BANK_501.sch

Title: CIAA-ACC Ethernet, SDIO, USB OTG

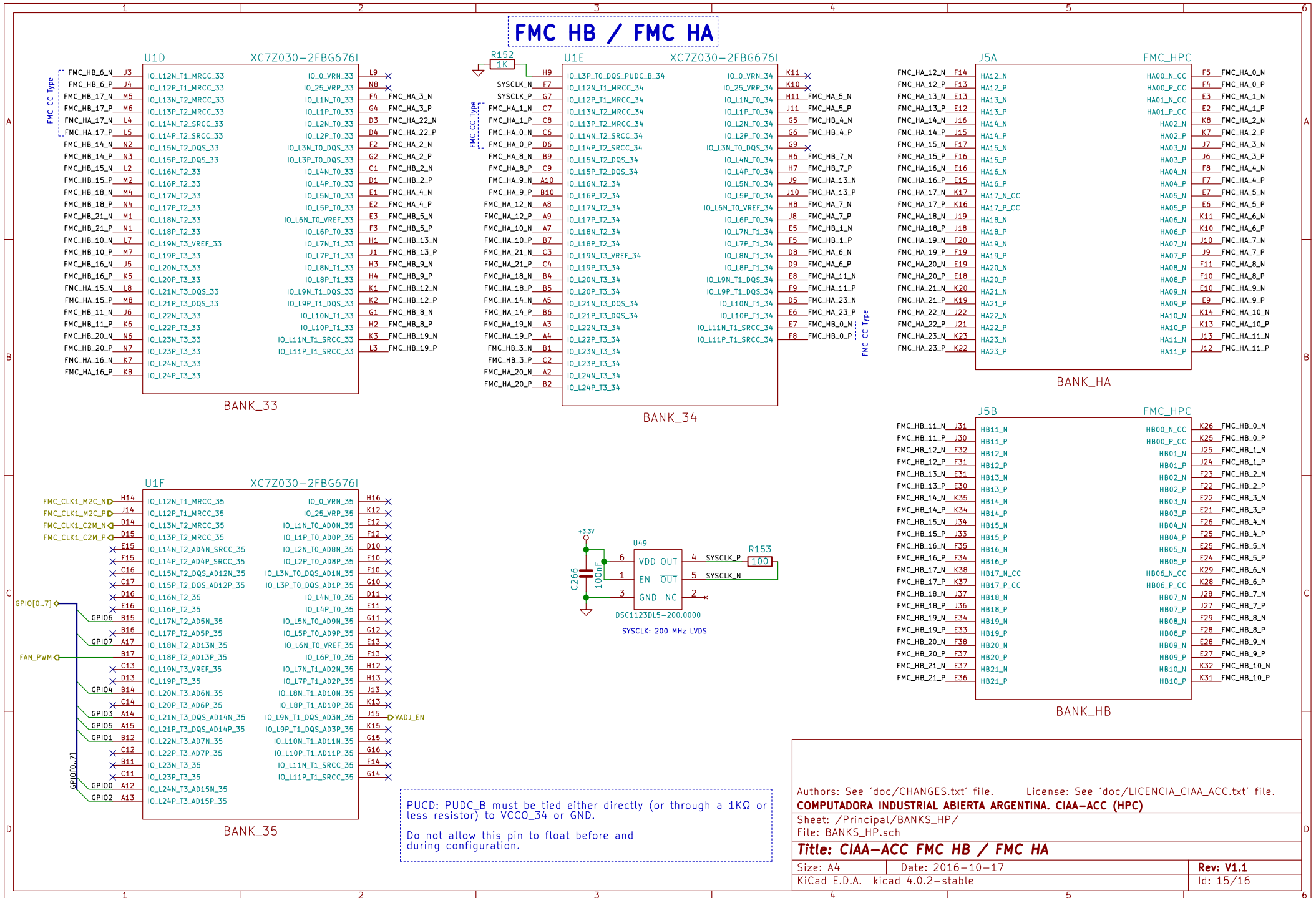
Size: A4 Date: 2016-10-17

KiCad E.D.A. kicad 4.0.2-stable

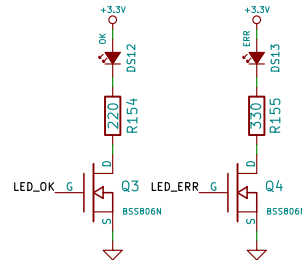
Rev: V1.1

Id: 14/16

FMC HB / FMC HA



FMC LA / FPGA BANKS 12, 13

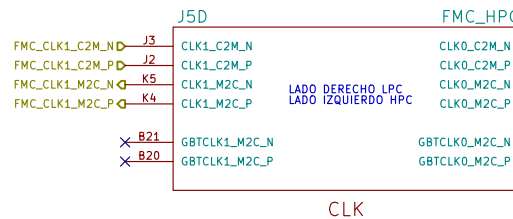


U1B XC7Z030-2FBG6761	
FMC_LA_1_N AD13	IO_L12N_T1_MRCC_12
FMC_LA_1_P AC13	IO_L12P_T1_MRCC_12
FMC_CLK0_C2M_N AD14	IO_L13N_T2_MRCC_12
FMC_CLK0_C2M_P AC14	IO_L13P_T2_MRCC_12
FMC_CLK0_M2C_N AB14	IO_L14N_T2_SRCC_12
FMC_CLK0_M2C_P AB15	IO_L14P_T2_SRCC_12
FMC_LA_30_N AD15	IO_L15N_T2_DQS_12
FMC_LA_30_P AD16	IO_L15P_T2_DQS_12
FMC_LA_20_N AF14	IO_L16N_T2_12
FMC_LA_20_P AF15	IO_L16P_T2_12
FMC_LA_28_N AE15	IO_L17N_T2_12
FMC_LA_28_P AE16	IO_L17P_T2_12
FMC_LA_33_N AF17	IO_L18N_T2_12
FMC_LA_33_P AE17	IO_L18P_T2_12
FMC_LA_11_N AA17	IO_L19N_T3_VREF_12
FMC_LA_11_P Y17	IO_L19P_T3_12
FMC_LA_23_N AB16	IO_L20N_T3_12
FMC_LA_23_P AB17	IO_L20P_T3_12
FMC_LA_25_N AC16	IO_L21N_T3_DQS_12
FMC_LA_25_P AC17	IO_L21P_T3_DQS_12
FMC_LA_10_N AA14	IO_L22N_T3_12
FMC_LA_10_P AA15	IO_L22P_T3_12
FMC_LA_19_N Y15	IO_L23N_T3_12
FMC_LA_19_P Y16	IO_L23P_T3_12
FMC_LA_12_N W15	IO_L24N_T3_12
FMC_LA_12_P W16	IO_L24P_T3_12

BANK_12

U1C XC7Z030-2FBG6761	
FMC_LA_18_N AC24	IO_L12N_T1_MRCC_13
FMC_LA_18_P AC23	IO_L12P_T1_MRCC_13
FMC_LA_17_N AD21	IO_L13N_T2_MRCC_13
FMC_LA_17_P AD20	IO_L13P_T2_MRCC_13
FMC_LA_26_N AC22	IO_L14N_T2_SRCC_13
FMC_LA_26_P AC21	IO_L14P_T2_SRCC_13
AF20	IO_L15N_T2_DQS_13
FMC_PRSNTD AF19	IO_L15P_T2_DQS_13
FMC_LA_21_N AE21	IO_L16N_T2_13
FMC_LA_21_P AE20	IO_L16P_T2_13
FMC_LA_31_N AD19	IO_L17N_T2_13
FMC_LA_31_P AD18	IO_L17P_T2_13
FMC_LA_27_N AF18	IO_L18N_T2_13
FMC_LA_27_P AE18	IO_L18P_T2_13
FMC_LA_22_N Y20	IO_L19N_T3_VREF_13
FMC_LA_22_P W20	IO_L19P_T3_13
FMC_LA_29_N AB20	IO_L20N_T3_13
FMC_LA_29_P AA20	IO_L20P_T3_13
FMC_LA_32_N AC19	IO_L21N_T3_DQS_13
FMC_LA_32_P AC18	IO_L21P_T3_DQS_13
FMC_LA_24_N AB19	IO_L22N_T3_13
FMC_LA_24_P AA19	IO_L22P_T3_13
FMC_LA_15_N W19	IO_L23N_T3_13
FMC_LA_15_P W18	IO_L23P_T3_13
FMC_LA_16_N AA18	IO_L24N_T3_13
FMC_LA_16_P Y18	IO_L24P_T3_13

BANK_13



CLK

J5C FMC_HPC	
FMC_LA_17_N D21	LA17_N_CC
FMC_LA_17_P D20	LA17_P_CC
FMC_LA_18_N C23	LA18_N_CC
FMC_LA_18_P C22	LA18_P_CC
FMC_LA_19_N H23	LA19_N
FMC_LA_19_P H22	LA19_P
FMC_LA_20_N G22	LA20_N
FMC_LA_20_P G21	LA20_P
FMC_LA_21_N H26	LA21_N
FMC_LA_21_P H25	LA21_P
FMC_LA_22_N G25	LA22_N
FMC_LA_22_P G24	LA22_P
FMC_LA_23_N D24	LA23_N
FMC_LA_23_P D23	LA23_P
FMC_LA_24_N H29	LA24_N
FMC_LA_24_P H28	LA24_P
FMC_LA_25_N G28	LA25_N
FMC_LA_25_P G27	LA25_P
FMC_LA_26_N D27	LA26_N
FMC_LA_26_P D26	LA26_P
FMC_LA_27_N C27	LA27_N
FMC_LA_27_P C26	LA27_P
FMC_LA_28_N H32	LA28_N
FMC_LA_28_P H31	LA28_P
FMC_LA_29_N G31	LA29_N
FMC_LA_29_P G30	LA29_P
FMC_LA_30_N H35	LA30_N
FMC_LA_30_P H34	LA30_P
FMC_LA_31_N G34	LA31_N
FMC_LA_31_P G33	LA31_P
FMC_LA_32_N H38	LA32_N
FMC_LA_32_P H37	LA32_P
FMC_LA_33_N G37	LA33_N
FMC_LA_33_P G36	LA33_P

BANK_LA

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Sheet: /Principal/BANKS_HR/
File: BANKS_HR.sch

Title: CIAA-ACC FMC LA / FPGA BANKS 12, 13

Size: A4 Date: 2016-10-17
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Rev: V1.1
Id: 16/16